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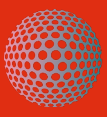
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Andrea De Toni · Andrea Arcidiacono · Silvia Ronchi *Editors*

Nature-Positive Cities: Adaptive Spatial Planning in Italy for an Ecological Urban Transition





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Nature-Positive Cities: Adaptive Spatial Planning in Italy for an Ecological Urban Transition



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Foreword

This book offers an opportunity to acknowledge the importance of studies and positions that have addressed problems related to climate change and their accumulation in urban and territorial practices over several decades. The set of contributions not only provides a focused cross-section of ongoing work but also raises questions about how it was initiated, how it is conducted and how its problems are displayed.

More than 50 years have passed since the United Nations Conference on the Human Environment held in Stockholm in 1972. This was the same year that the Club of Rome published research bringing the world's attention to an issue with disturbing implications, presenting it with a blunt title: 'The Limits to Growth'. Acknowledging and preparing for this warning—at a time when the global economy was shaped by ways to obtain the energy necessary for development from fossil fuels and, especially, the idea of human control over nature was well established—proved to be a difficult prospect to accept and process. After many years, the consequences of global warming and its drastic effects on many parts of the world have become clear, it is 'normal' to refer to climate change in weather forecasts and public debate, but policies are struggling. Openly denialist positions have decreased, but they have given way to delaying tactics (moving target dates forward) and/or blind confidence in technological progress, implying the idea that a lot can change, but without affecting the model of development. The extraordinary undertaking that the current revolution entails, suggests that we carefully consider the difficulties being encountered.

One aspect that is worth reflecting on concerns the origin of this angle and the subjects who introduced it, due to the consequences it has had on the general approach.

As at other times in history, research marked the turning point. This research was conducted by a large group of experts from various disciplines that met as a 'club' in Rome in 1968, at the behest of an entrepreneurial economist and an expert in science and technology. The members then made use of computer processing carried out by researchers at the Massachusetts Institute of Technology. The commitment and personal contacts of the club members encouraged dissemination of the resulting knowledge and their convictions, finding a 'sounding board' in international bodies.

By their nature, such bodies initiate action in member countries to promote collaboration in the technical, financial and regulatory fields, relying on individual will and initiative. In the last 50 years, we have witnessed the percolation of issues from international bodies to both governmental institutions and to social practices and public debate along different winding paths in each, loading the issues with interpretations, segmenting and specifying them in different contexts. This leads to an extremely complex decision-making chain, both direct and indirect, that is worth focusing on to understand the way the great objective of reconciling cities with nature—an objective that changes the paradigm and 'disrupts' the given order—is translated.

The development of the principles enunciated in research, experimentation and proposals, which have led to a new branch of urban and territorial studies, must be attributed to the push by the European Union, whose bodies, starting with the Directorates-General, have translated the objectives outlined by the United Nations into programmes and projects. This has yielded a series of initiatives aimed mainly at local institutions, those closest to the problems and citizens, featuring incentives for collaboration among participating subjects and the exchange/integration of approaches, knowledge, techniques and tools belonging to different related disciplinary fields. This has led to the confirmation of a method organised around strategy/action pairs and complex procedures, along with the construction of a language superimposed on disciplinary traditions. An approach using the persuasive power of a semantic utopia associated with economic and financial support has produced a new generation of innovative 'informal' tools. Impacts with the existing structure have involved both a double track, with new instruments placed alongside institutionalised tools for territorial governance, and introduction and fusion, when similarities and convergences are recognised.

In reading the 12 chapters of this book, I note not only continuous references to the issues of the international apparatus but also believe it is possible to recognise two main ways we can learn from the European 'lesson'. The first consists in redefining the disciplinary field, broadening and deepening it to include topics compatible with those already present in urban and territorial planning. The second consists of pursuing a lasting status for new instruments. The first includes the adoption of biodiversity, ecological connection and ecosystem services as guiding concepts in pointing landscape and material welfare in a new direction, while the second includes investments in Green Plans and Green and Blue Infrastructures. In my opinion, selecting aspects that can be dealt with in one's own field, together with reinterpreting and bending those already present, seem to be ways that urban and spatial planning has adopted to meet the challenge of climate change. A holistic approach was subjected to a process of reduction involving a selection of variables, assuming targets for politically significant timeframes, and standardisation.

I believe that all of this helps to explain the centrality of 'greenery', which is inextricably linked water and soil, in that they recall and give a complete meaning to the heterogeneous and dynamic set of design solutions defined as 'nature-based'.

There are now numerous case studies that enable us to build grids to synthesise the multifunctional nature of greenery and its ability to mitigate, rather than just adapt to the effects of climate change. We are used to using the terms 'adaptation'

and ‘mitigation’ together, but the differences are not trivial. It is not just a question of defending ourselves to reduce the damage to people and property, but rather intervening in dangerous dynamics by understanding them.

Manuals prepared following reports and repertoires of good practices have permeated projects for transforming public spaces and, slowly, even the most difficult ones such as ground-level parking lots, where depaving, rebuilding the humus and planting change the performance and perception of the open space and its surroundings. These are achievements that the pandemic undoubtedly encouraged, albeit in a limited manner and not always professionally, but sufficient nevertheless to be convincing. Trends that are ‘decorative’ (green is evoked to validate any type of planned intervention), fashionable or ideological must not cause us to lose sight of the importance of a serious urban forestry policy, nor must it excessively abuse yet another semantic utopia as ‘biocity’: biocity is just one way to strategically denote urban and territorial regeneration.

Nevertheless, a critical attitude is indispensable in observing, for example, that the distribution of greenery is unequal, whether across parts of a city, across cities or across territories; that greenery also modifies urban values and its distribution must be considered with a view to equity and priority when resources are scarce; that the necessary massive operations call for equally massive private investments; that resistance to extreme events is possible with suitable species of ‘healthy’ (i.e. maintained) plants of the right age planted in appropriate locations; that flora is associated with fauna and that the metabolic dimension should be a cornerstone of the biocity; that urban forestry and densification are not two sides of the same coin; etc.

The European method—strategies/actions/targets/assessment/monitoring—and the introduction of thematic programmes and projects aimed directly at local institutions have encouraged the proliferation of informal tools and the development of new skills, but they have fuelled the idea that this will solve the problem of the inadequacy of traditional forms of territorial governance. A gap has formed, more or less consciously, between the search for other tools and a new form of the plan. However, the primary objective of limiting atmospheric warming by reducing the emission of greenhouse gases affects the economy and social well-being in a web that can only be considered by working with the tools held by the bodies responsible for territorial governance.

This convergence does not seem difficult with regard to municipal urban planning: the forerunners of the current green plans were already settled in the general urban plans. It is more problematic, however, to ‘find a home’ for green and blue infrastructure, which are indispensable for connectivity and biodiversity, as well as potential vehicles for regenerating other infrastructure under and above ground and the Italian landscape in general. They could support and connect the physical structures that allow environmental, economic and social systems to function, the framework of a country whose lithological and geomorphological features underlie serious instabilities. We have many specialised maps and national and regional sectors have accumulated knowledge related to their related fields, but nature knows no bounds

and interdependence dominates. This is perhaps the most difficult issue to tackle: governing green and blue infrastructures.

Urban planners began to deal specifically with the relationship between plan contents and administrative boundaries with the great settlement expansion, but they seem to have grown timid with their unsuccessful experience with territorial districts. Faced with the disappointing results of the Metropolitan cities and the ineffective role of the Provinces in planning, the Regions—whose boundaries roughly align with historical borders and are not entirely detached from geographical areas—may hold decisive importance. Only by fully recovering the territorial dimension in regional strategies and resuming the country-wide experience of 'territorial projects' through a critical lens can we obtain any answers. In territorial, regional and interregional projects, urban and spatial planning should include environmental policies among their features. The Nature Restoration Law approved by the European Council in 2024, the first request for national governments to prepare plans expressed in terms of law, could/should offer a more solid foundation for regional initiatives, helping to overcome sector divisions and establish a solid link between landscape plans and territorial strategies.

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Biodiversity and Landscape: Towards an Alliance in Italian Spatial Planning



Benedetta Giudice and Angioletta Voghera

Keywords Biodiversity preservation · Landscape planning · Ecological network · Green infrastructure · Local plan

1 Biodiversity and Landscape: Frameworks and Challenges in Europe and Italy

Numerous tools, methods, and strategies have emerged to foster sustainability and resilience in response to accelerating global changes, such as climate change, soil sealing, and pandemic-related crises. While many focus on technological innovation, they often remain fragmented. As a result, there is a growing call for integrated frameworks capable of addressing the complexity and dynamism of socio-ecological systems. Within this context, landscape and biodiversity have become central to advancing holistic approaches to socio-ecological resilience.

Approximately 80% of European habitats are currently degraded, underscoring the urgency for more ambitious and coordinated conservation policies. The targets set by the 1992 Convention on Biological Diversity (protecting 17% of terrestrial and inland water areas and 10% of marine areas by 2020) are now widely considered inadequate. In response, the Global Deal for Nature petition [1] and the

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Kunming-Montreal Global Biodiversity Framework call for more binding commitments, including legal restoration of at least 30% of all degraded ecosystems (terrestrial, water, marine, and coastal environments) and the conservation of 30% of land, waters, and seas.

Complementing these goals, the recently approved Nature Restoration Law, definitively adopted by the Council of the European Commission on June 17, 2024, reflects the urgency to address environmental degradation in Europe. As the first continent-wide legislative initiative explicitly dedicated to ecological restoration, the law marks a significant institutional commitment to advancing the European Green Deal goals and operationalizing the EU Biodiversity Strategy for 2030 by setting binding, time-bound targets: 60% of restoration actions must be completed by 2040, and 90% by 2050, with restored areas safeguarded against future degradation. By emphasizing integrating natural elements within urbanized contexts as essential for ecological transition and climate adaptation, the law mandates that member states adopt National Restoration Plans with clearly defined objectives and implementation measures.

Importantly, the law builds upon a long-standing urban and regional planning tradition. Pioneers such as Patrick Geddes, Ian McHarg, Frederick Steiner, Vittoria Calzolari, Roberto Gambino, Edoardo Salzano, and Alberto Magnaghi have promoted ecological approaches that "work with nature" through systemic landscape enhancement and context-sensitive urban design. Their legacy informs contemporary efforts to reintroduce permeable soils to rivers and floodplains, promote urban forests, deseal paved surfaces, and establish green and blue infrastructure. These interventions not only enhance biodiversity and ecological connectivity but also contribute to climate resilience by improving air, water, and soil quality and overcoming territorial vulnerabilities through a wide range of ecosystem services.

Since adopting the European Landscape Convention (2000), landscape has played an increasingly strategic role in broadening the scope of biodiversity policy. It enables a deeper integration between nature conservation and landscape planning. Indeed, as Gambino and Peano [2] argue, integrating these domains promotes a more holistic, place-based approach to biodiversity governance. In this context, landscape serves not only as a physical and ecological framework but also as a means of "discovery" [3] and spatial interpretation [4], providing a foundation for multi-scalar analysis and strategic design practices that align ecological, cultural, and spatial dimensions in planning processes.

In the Italian context, these two policy frameworks are effectively integrated, facilitating the development of strategies focused on conservation and territorial enhancement, with particular reference to regional landscape planning. Indeed, through the *Istituto Superiore per la Protezione e la Ricerca Ambientale* (ISPRA) and the Ministry of the Environment and Energy Security, Italy is advancing an integrated policy framework to meet the EU target of protecting 30% of territory by 2030. Central to this effort is reinforcing the national system of protected areas and integrating ecosystem conservation measures into spatial and landscape plans. These initiatives, which began over two decades ago with the development of the national ecological

network guidelines [5], are now being updated. In parallel, green and blue infrastructure strategies [6] are being implemented through multiscale, multidimensional planning to enhance ecological and landscape biodiversity.

In this context, the recent amendment to Article 9 of the Italian Constitution[1] has brought renewed attention to the intricate interconnections among environment, territory, ecosystems, landscape, and cultural heritage. This constitutional innovation expands the roles and responsibilities of spatial planning across multiple governance scales. In particular, the "problematic triangulation between environment, territory, and landscape" [7] underscores the institutional complexities surrounding formulating strategic interventions. Within spatial planning, these dimensions often lead to differentiated trajectories and outcomes, shaped primarily by existing regulatory frameworks and the multiplicity of institutional actors involved. Alongside these themes, the notion of Nature, frequently framed through the conceptual lens of the environment [7], is increasingly emerging as a central construct within territorial, landscape, and environmental policies and strategies.

1.1 The Role of Regional Planning

The concept of ecological network, introduced in the 1990s to counteract habitat fragmentation and biodiversity loss, has become a cornerstone of Italian sustainability and land use policies [8]. Over time, it has gained growing significance in regional and provincial planning, supported by evolving regulatory and guiding frameworks. Nevertheless, while regional strategies play a key role, local implementation remains limited [9], hindering the translation of policy principles into effective urban development projects that conserve natural areas, reinforce ecological connectivity, and enhance the landscape. Moreover, persistent challenges also remain in grounding local actions within strong interpretative frameworks for biodiversity conservation.

Regional and landscape planning must increasingly broaden their scope to incorporate the emerging imperative of ecological transition and biodiversity conservation, enabling coordination across sectoral policies. While ecological connectivity remains a well-established focus, landscape planning has also broadened its scope of action and strategic functions to engage with new priorities such as climate change adaptation, risk and vulnerability management, and territorial resilience. Despite this, challenges persist in delivering design quality and integrated implementation. Similarly, protected area planning has evolved to support biodiversity as a foundation for sustainable development and territorial transformation. However, this ambition continues to be constrained by the rigidity of an outdated legislative framework (Law No. 394/1991), which no longer reflects the complexity of current challenges.

[1] The Republic promotes the development of culture and scientific and technical research. It safeguards the landscape and the historical and artistic heritage of the Nation. It protects the environment, biodiversity, and ecosystems, also in the interest of future generations.

Moreover, through various interactions between land-use and landscape policies, regional planning serves as a strategic intersection of environment, territory, landscape, and nature. In Italy, the adoption of the European Landscape Convention in 2000 (ratified in 2006) together with the approval of the *Codice dei Beni Culturali e del Paesaggio* (henceforth "the Code") in 2004, revitalized landscape planning, spurring innovation across regional, intermediate, and local planning levels. A key outcome has been the integration of strategic spatial development components with landscape protection. The regional landscape plan (*Piano Paesaggistico Regionale*—PPR), in particular, has emerged as a systemic tool that links regulations, policies, and strategic vision, fostering forward-looking ecological enhancement and experimental responses to climate change adaptation and landscape vulnerabilities mitigation [10]. Nevertheless, regional landscape planning in Italy remains fragmented yet continuously evolving [11]. To date, seven PPRs have been approved in line with the Code (Sardinia—limited to the coastal zone, Tuscany, Puglia, Piedmont, Friuli Venezia-Giulia, Lazio, and Basilicata, while Veneto and Lombardy have adopted their PPRs. Ten Regions are currently drafting or revising their PPRs, including Abruzzo, Calabria, Campania, Emilia-Romagna, Liguria, Marche, Molise, Umbria, and Sardinia (for inland areas). Finally, adapting local planning tools to PPRs also proceeds unevenly, reflecting regional disparities in implementation pace.

2 Multi-scalar Governance of Biodiversity and Landscape in the Piedmont Region

2.1 The Regional Framework

The Piedmont Region is undergoing major planning transformations. Since its current Regional Territorial Plan (*Piano Territoriale Regionale*—PTR) was approved in 2011, the region has progressively revised sectoral and non-sectoral planning tools. Piedmont has also recently approved two key strategic frameworks: the Regional Strategy for Sustainable Development and the Regional Strategy on Climate Change, following a complex process to deliver integrated technical, operational, and regulatory responses to contemporary challenges.

Although formally distinct, the PTR and the PPR have been built since the mid-2000s from a common cognitive framework, strategic vision, general objectives, and the environmental assessment process. This alignment ensures strong regulatory coherence, based on five core policies: (i) territorial regeneration and landscape protection and enhancement; (ii) environmental sustainability and energy efficiency; (iii) territorial integration of mobility, communication, and logistics infrastructures; (iv) research, innovation, and economic-productive transition; and (v) the enhancement of human capital and institutional capacities. While they share a strategic foundation, their specific objectives and actions differ, reflecting their distinct scopes.

The PPR of Piedmont, initiated in 2009 and approved in 2017 through an agreement with the former Ministry of Culture, establishes key sustainability principles: responsible land use, reduced agro-natural soil consumption, and protection of landscape features that constitute the identity of each territory. These aims are pursued through knowledge-based actions for protection, enhancement, and regulatory guidance. The PPR's strategic apparatus supports spatial planning and major projects such as UNESCO and MAB sites, the Corona Verde initiative, river and lake contracts, the regional ecological network, and land take monitoring. Its regulatory apparatus, meanwhile, guides the management of landscape assets, informs project authorization, and assists local landscape commissions.

The interpretive and strategic framework of Piedmont's diverse landscape is articulated through the identification of 76 landscape areas (*ambiti di paesaggio*). These territorial units are recognized and described through detailed fact sheets highlighting their structuring, qualifying, and characterizing features. The landscape areas serve not only as a reinterpretation and synthetic representation of the territory but also as the foundational framework for defining landscape quality objectives aimed at protecting and enhancing the territory.

The environment, shaped over millennia through human-nature interaction, is a structuring element of the regional landscape. This relationship underpins the concept of the landscape connection network, a strategic scenario of the plan integrating protected areas, Natura 2000 sites, the regional ecological network, and environmental, historical, and cultural assets (Fig. 1). Conceived as a network of networks (ecological, historical, and recreational), this multifunctional structure forms the basis for a territorial development project that "evolves in reticular forms" [12]. Planning thus adopts a dual approach: networked interpretation of natural systems and multifunctional ecological reticularity linked to cultural continuity. Its dynamic governance engages diverse actors to foster shared cultural identity and sustainable local development.

Currently undergoing revision, the PTR seeks alignment with the aforementioned strategies, reinforcing its role as a structural, strategic, and regulatory framework for territorial governance. A key innovation is the redefinition of the 33 Territorial Integration Areas (*Ambiti di Integrazione Territoriale*—AIT), which now serve as critical interfaces between regional, intermediate, and municipal planning levels. Each AIT is assigned specific objectives, allowing for targeted evaluation of planning interventions and prioritization of resource allocation. In addition to reorganizing its specific objectives around five strategic axes, the PTR introduces a new overarching goal: digitalizing and simplifying public administration processes.

2.2 Planning Protected Areas

Among Piedmont's territorial planning tools, park plans (*Piani d'Area*) for protected areas represent an excerpt of the PTR and must align with the PPR. As such, they are essential for implementing integrated planning at intermediate and supra-local

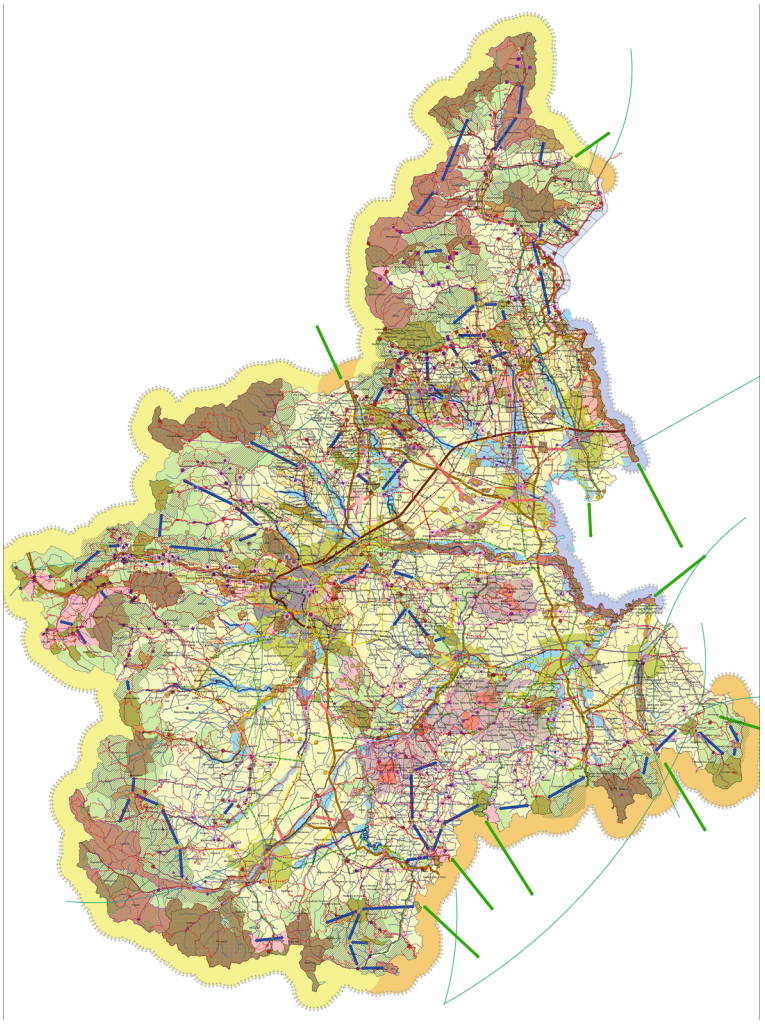


Fig. 1 The landscape connection network. *Source* Regional landscape plan of piedmont

scales, especially within territories managed by the Piedmont Region through dedicated management authorities (*Ente di Gestione delle Aree Protette*). To date, 13 of 22 protected areas have approved plans, with several other procedures underway in key areas of the Metropolitan City of Turin. In 2024, Piedmont issued strategic guidelines for developing new park plans, acknowledging their role not only in enhancing natural and cultural resources and biodiversity but also in advancing climate change adaptation strategies and improving ecosystem services provision. Since the 1970s, European policies have positioned protected areas as strategic actors in environmental and territorial planning [13]. Contemporary park planning must address global

changes by assigning social, spatial, and temporal value to environmental policies that must be context-sensitive, differentiated upon resource diversity, and clearly communicated. This requires "the integration of knowledge, decisions, evaluations, and interventions" [14], and a shift from hierarchical governance toward a dialogical approach that aligns policies across scales and reinforces the central role of landscape, as emphasized in the PPR.

Planning and managing protected areas require a holistic vision integrating nature conservation, biodiversity protection, and development policies into forward-looking strategies. This is especially crucial given the scale and socio-territorial relevance of protected areas (24% of Europe and over 11.5% of Italy), particularly in relation to growing interactions with urban contexts [15]. In Piedmont, park plans, such as the Piedmontese Po park currently under development with our scientific coordination, are key tools for coordinating regulatory, local, and conservation actions, resolving tensions between environmental, landscape, and ecological issues, and aligning with the PPR's landscape enhancement goals. This pivotal role can, however, generate tensions within protected areas, especially between state authority over environmental and landscape protection and regional powers in territorial planning, which inevitably intersect. The Piedmontese Po park plan exemplifies a first attempt to integrate these competencies. As an operational element of the PTR, it acts as a primary land management tool, aligning landscape and biodiversity policies with those for sustainable development. Moreover, these plans aim to link protection and development strategies, anchoring parks within their broader territorial context. Rather than merely updating conservation policies, they should guide municipal governance, address local criticalities, and articulate a supra-local, long-term vision (Fig. 2). Crucially, they must be seen not as inter-municipal plans, but as strategic tools for confronting today's environmental and territorial challenges.

2.3 The Intermediate Level

Regional and provincial plans must be complemented by additional tools to articulate integrated biodiversity policies at the local level effectively. In Piedmont, a notable example is "The Guidelines for the Ecological Network", incorporated into the Provincial Coordination Plan of the former province of Turin. These guidelines define a strategic framework for creating the Provincial Ecological Network system to support land-use planning through biodiversity conservation. It contributes to limiting land consumption, enhancing and expanding ecosystem services, and promoting the sustainable use of natural resources and landscape assets.

This methodology is strategically valuable due to its simplicity in interpreting biodiversity from the intermediate to local scale. It enables the assessment of the ecological functionality of the territory by analyzing different land use types, based on Land Cover Piemonte, through five key indicators: naturalness, relevance for preservation, fragility, extroversion, and irreversibility. These indicators provide a comprehensive framework for evaluating the ecological status of areas. Integrating

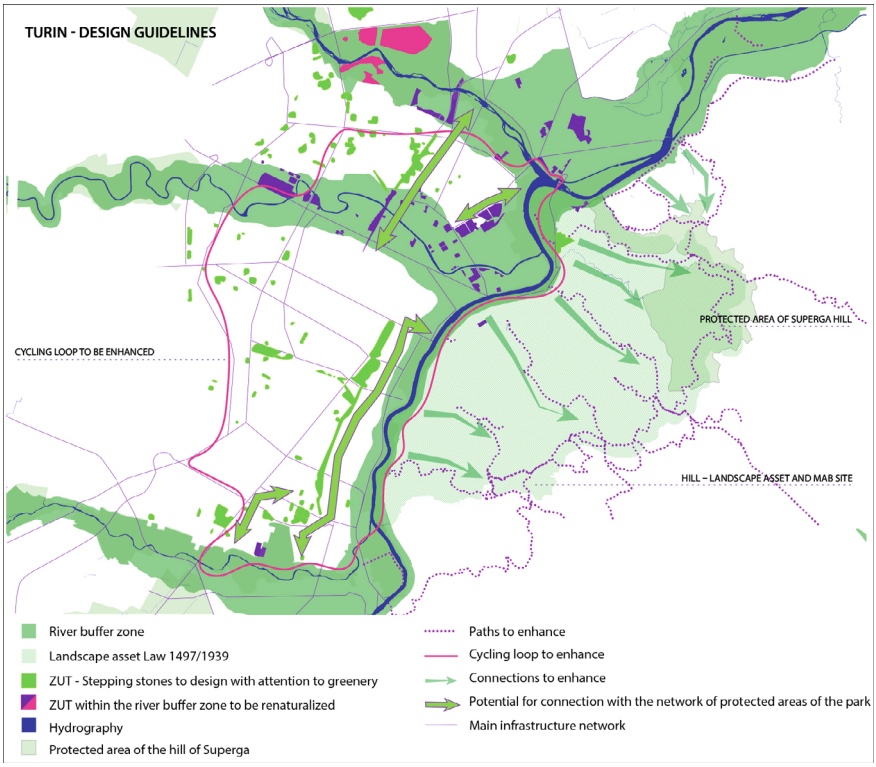


Fig. 2 Design guidelines for the city of Turin within the Piedmontese Po Park. *Source* Adapted from an image by Ardito

these results into a large-scale biodiversity map offers a clear visualization of the ecological structure of the area. This map identifies: (i) structural elements of the network (primary ecological reticularity), which include areas of high to moderate ecological functionality and zones hosting specific conservation values due to their high naturalness and biodiversity significance; (ii) the priority expansion areas, which are territories with residual ecological functionality where interventions are urgently needed to enhance the primary ecological network. These areas are subdivided into connection areas and buffer zones (within 50 m) adjacent to structural elements; potential expansion areas, i.e., areas where residual ecological functionality exists and where habitat and species conservation actions could be effectively implemented (Fig. 3).

By experimenting with this method, it is possible to assign ecological meaning and ecosystem value to various land uses. This approach goes beyond merely analyzing the state of naturalness and biodiversity at different scales; it enables the definition of priorities for conservation and enhancement actions across the territory. For example, in the structural scheme of the green infrastructure within the ongoing Metropolitan General Territorial Plan, the method allows for evaluating the ecological quality of

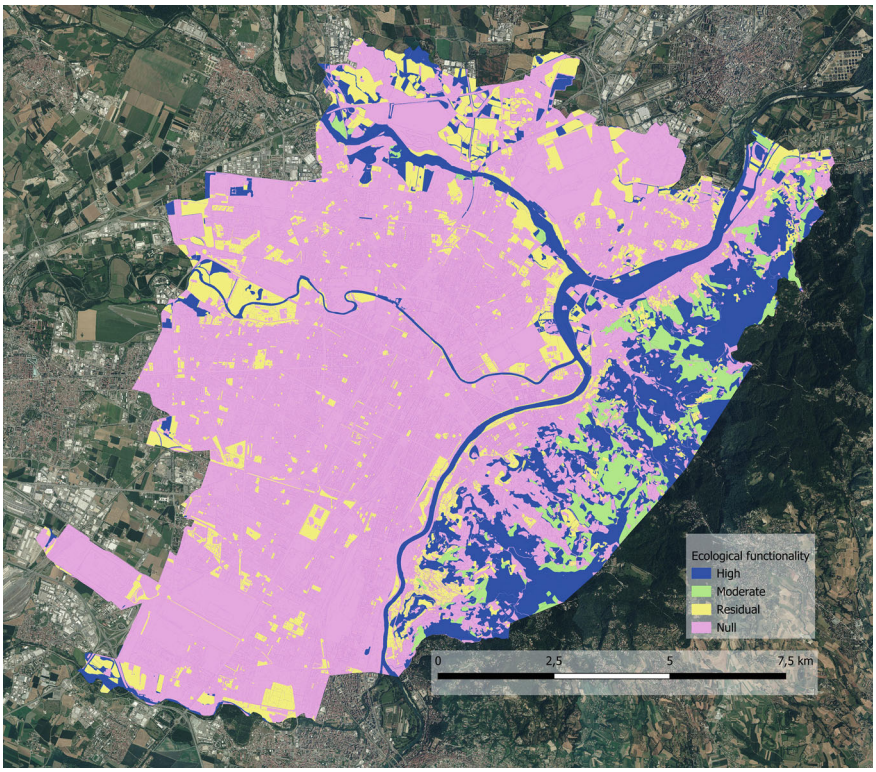


Fig. 3 Ecological functionality in the city of Turin. *Source* Elaboration by La Riccia

the territory and supporting the multiscale design of ecological networks, integrating the regional, provincial, and local levels.

3 Conclusions

The challenge of enhancing biodiversity within territorial and landscape policies, as emphasized by the Nature Restoration Law, introduces significant implications for spatial planning and urban design. It reflects a broader paradigmatic shift in our relationship with nature, echoed in the 2021 IUCN World Conservation Congress, under the banner "Our nature, our future", which promoted a nature-positive economy and nature-based recovery as central pillars of biodiversity action. These frameworks urge planners and policymakers to move beyond outdated models [16], advocating for an integrated approach that reconciles site-based conservation with sustainable development. Addressing the legacy of the so-called "great acceleration" in biodiversity loss requires embedding ecological transition across all planning scales

through concrete, multi-level governance actions. In this context, distinguishing and connecting sustainability and resilience conceptual frameworks [17] becomes crucial in enabling a complex, trans-scalar planning approach. Such an approach expands the scope of territorial governance, demanding cross-sectoral collaboration among institutions, communities, and socio-economic stakeholders. It supports a broad agenda, from natural regeneration and biodiversity enhancement to climate neutrality, integrated risk management, and the broader energy transition.

In such contexts, park plans emerge as pivotal tools in this new planning ethos, particularly in regions like Piedmont with diverse landscapes (including mountain, rural, water, and peri-urban). Far from being limited to conservation instruments, they act as strategic tools that couple protection with innovation [18]. These "special territories" function as guardians of biological and cultural diversity and serve as antifragility reserves and testbeds for nature-based solutions, promoting sustainability, green economy initiatives, and human and ecosystem health. In this light, park plans contribute to a cultural shift that reimagines the relationship between humans and the Earth, aligning with global frameworks and national and regional directives.

Within this framework, area-based nature and biodiversity conservation strategies, such as protected areas, are increasingly seen not only as biodiversity reservoirs but also as catalysts for integrated territorial projects. By linking protected and surrounding areas through the lens of green and blue infrastructure, these strategies support ecological connectivity, enhance ecosystem services, and foster multifunctional landscapes. Urban and peri-urban protected areas and other green areas must be recognized as integral elements within a broader, trans-scalar ecological network.

Meeting these challenges requires planning and design approaches that embed biodiversity as a strategic value across all governance levels. Such integration advances both sustainability and resilience goals, while affirming the essential interdependence between people and nature. Ultimately, embracing the transformative alliance between protected areas, landscape, biodiversity, and territorial policies offers a proactive path to address the interconnected ecological, climatic, and societal crises of our time.

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